

- 1. PRECAST MANHOLE SHALL MEET THE REQUIREMENTS OF ASTM C-478 WITH MINIMUM 4,000 PSI CONCRETE STRENGTH AND TYPE I/II PORTLAND CEMENT. REINFORCING SHALL MEET THE REQUIREMENTS OF ASTM A-185 AND A-615 (REINFORCEMENT NOT SHOWN).
- FOR MANHOLES LOCATED IN DELDOT ROADWAYS, THE FRAME MANHOLE STACK TRANSITION SHALL BE ORIENTED SUCH THAT
 FRAME AND COVER IS LOCATED OUTSIDE OF THE WHEEL PATH WHENEVER POSSIBLE. PROVIDE INDIVIDUAL CUT SHEETS FOR ALL
 MANHOLES INSTALLED WITHIN DELDOT ROADWAYS. DELDOT WILL REQUIRE A CONCRETE COLLAR ON STATE MAINTAINED
 ROADWAYS REFER TO CURRENT DELDOT REQUIREMENTS.
- CONCRETE COLLAR DIMENSIONS ALSO APPLY FOR TERMINAL CLEANOUTS WHEN TERMINAL CLEANOUTS ARE NOT IN PAVED ROADWAYS. ALL CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH.
- 4. COUNTY INSPECTOR WILL DETERMINE STUB LENGTH BASED ON FIELD CONDITIONS.
- CEMENT MORTAR SHALL BE APPLIED AT ALL JOINTS WITHIN MANHOLE.
- SEE PLANS & SPECIFICATIONS FOR REQUIREMENTS FOR MANHOLES GREATER THAN 48" IN DIAMETER.

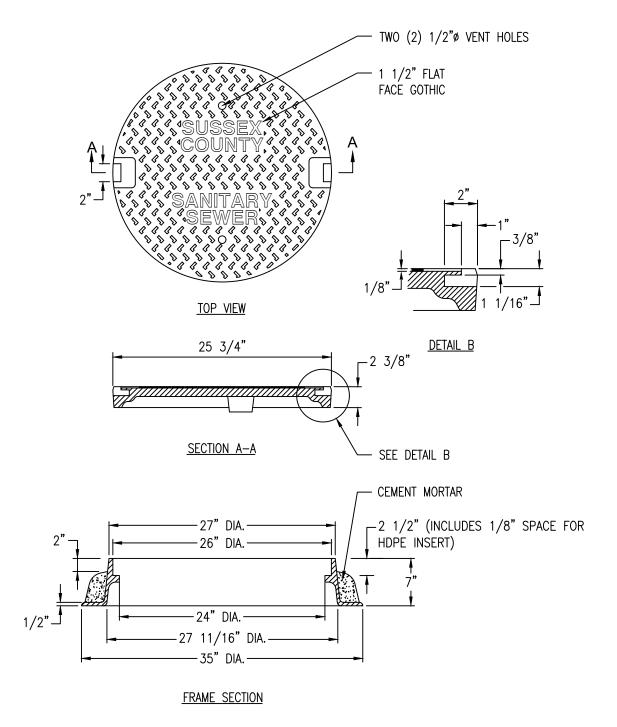


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

PRECAST CONCRETE MANHOLE

DETAIL S-1.01



- SEWER MANHOLE COVERS INSTALLED IN PEDESTRIAN WALKWAY MUST BE ADA COMPLIANT.
- 2. MANHOLE FRAME AND COVER MUST BE PRODUCED AND FINISHED IN THE UNITED STATES.

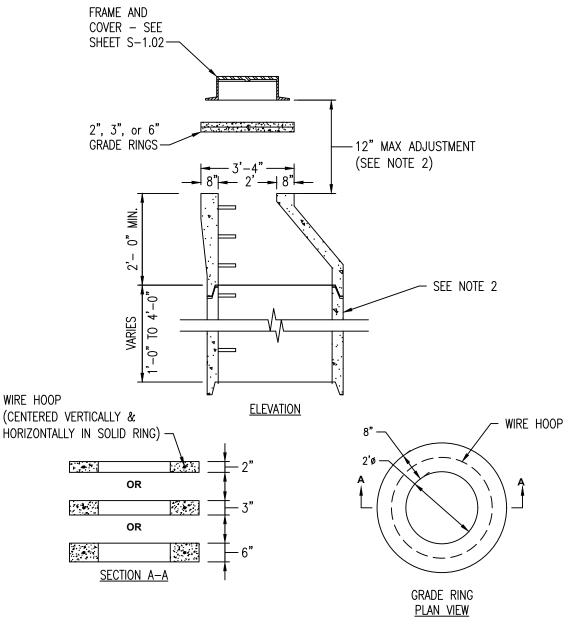


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

MANHOLE FRAME AND COVER DETAIL S-1.02

DATE ISSUED: 5/31/2022



- 1. PRECAST MANHOLE SHALL MEET THE REQUIREMENTS OF ASTM C-478 WITH MINIMUM 4,000 PSI CONCRETE STRENGTH AND TYPE I/II PORTLAND CEMENT.
- 2. IF ADJUSTMENT HEIGHT EXCEEDS 12", A ONE (1) FOOT RISER INSTALLED BELOW CONE SECTION WILL BE REQUIRED. A MAXIMUM OF THREE (3) GRADE RINGS WILL BE ALLOWED.
- 3. ALTERNATE MATERIAL GRADE RINGS MAY BE USED FOR MANHOLES LOCATED OUTSIDE OF ROADWAY LIMITS, SUBJECT TO COUNTY APPROVAL.
- BRICK ADJUSTMENT COURSES PERMITTED, SUBJECT TO DIMENSION REQUIREMENTS NOTED ABOVE.
- 5. CONCRETE RING SHALL HAVE A DESIGN STRENGTH OF 5000 PSI IN 28 DAYS DESIGN SHALL MEET REQUIREMENTS OF ASTM C-478

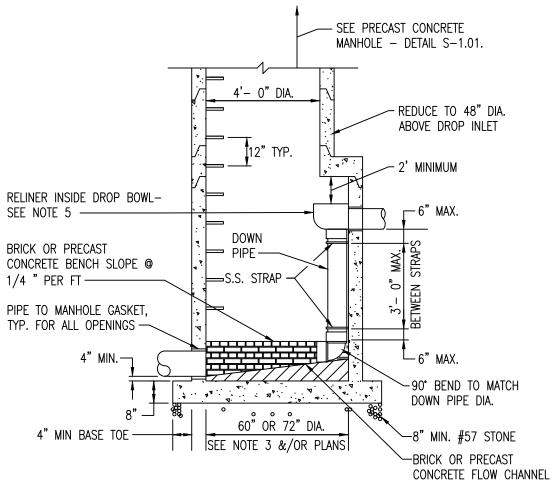


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

MANHOLE FRAME AND COVER ADJUSTMENT

DETAIL S-1.03



ELEVATION

NOTES:

- 1. STAINLESS STEEL STRAPS SHALL BE 1/8 " X 1" MIN.
- 2. S.S. STRAP CONNECTORS SHALL BE EXPANSION BOLTS OR APPROVED EQUAL.
- 3. A 72" DIAMETER MANHOLE SHALL BE PROVIDED WITH TWO DROP CONNECTIONS IN MANHOLE; A 60" DIAMETER MANHOLE SHALL BE PROVIDED WITH A SINGLE DROP.
- 4. A DROP MANHOLE IS NOT REQUIRED WHEN THE DIFFERENCE IN INVERTS IS LESS THAN 2'. FOR DIFFERENCES IN INVERTS LESS THAN 2', PROVIDE A SMOOTH TRANSITION WITHIN THE FLOW CHANNEL.
- 5. INSTALL A RELINER INSIDE DROP BOWL CONSISTING OF BOWL, HOOD, AND SECURED WITH STAINLESS STEEL FASTENERS, OR APPROVED EQUAL
- 6. SIZE OF DOWN PIPE SHALL BE PER MANUFACTURER RECOMMENDATIONS, WITH AN 8" MIN. DIAMETER.

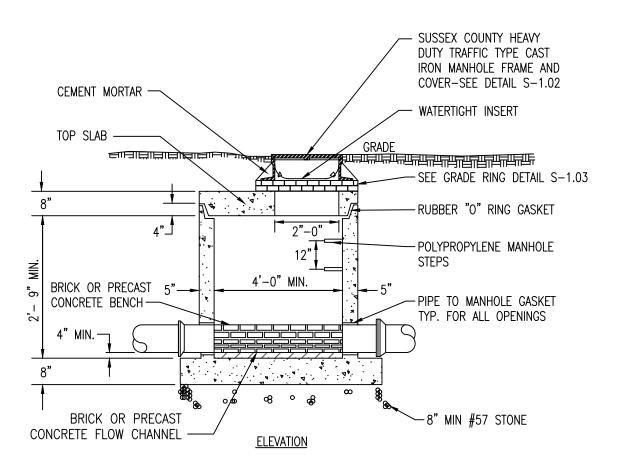


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

INSIDE DROP MANHOLE

DETAIL S-1.04



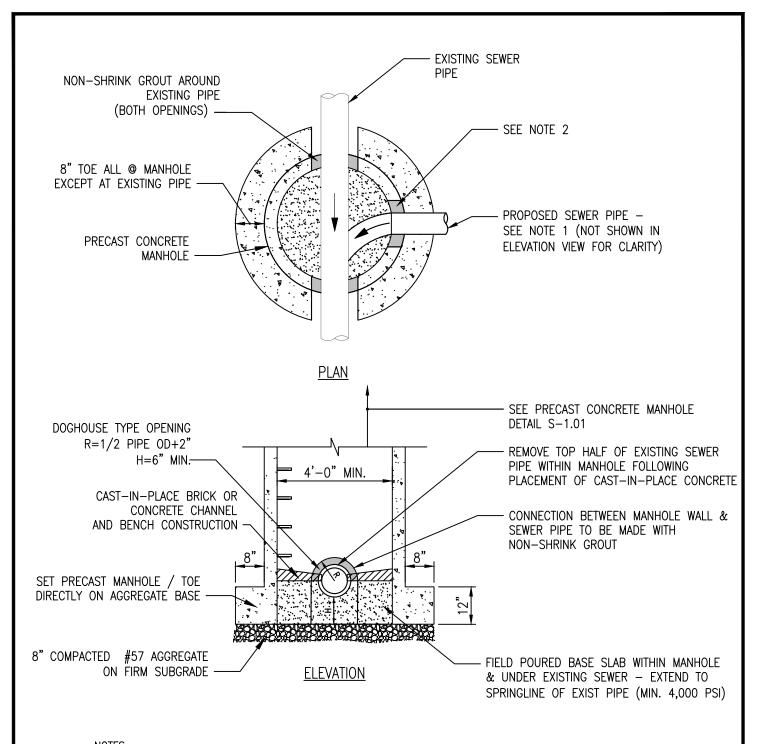
NOTE: SEE DETAIL S-1.01 FOR ADDITIONAL MANHOLE DETAILS.



SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

48" DIAMETER SHALLOW PRECAST MANHOLE DETAIL S-1.05



- 1. INCOMING INVERT OF PROPOSED SEWER SHALL BE EQUAL TO OR GREATER THAN THE SPRING LINE OF EXISTING SEWER PIPE.
- 2. CORE MANHOLE WALL AS REQUIRED TO ACCEPT PROPOSED PIPE. OPENING SHALL BE SEALED WITH LINK-SEAL MODULAR SEAL FOLLOWING PLACEMENT OF PIPE.
- 3. PLACEMENT OF DOGHOUSE MANHOLE SHALL BE SUCH THAT EXISTING PIPE JOINT FALLS ENTIRELY OUTSIDE LIMITS OF MANHOLE.

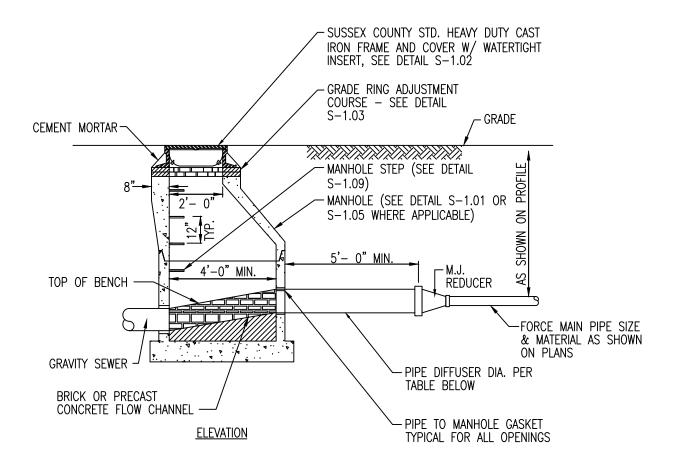


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

DOGHOUSE MANHOLE

DETAIL S-1.06



- COAT INTERIOR SURFACES OF MANHOLE WITH AMINE CURED EPOXY, TWO (2) COATS 16.0 TO 24.0 MIL TOTAL.
- 2. SEE DETAIL S-1.01 FOR ADDITIONAL MANHOLE DETAILS

FORCE MAIN PIPE DIA. (IN.)	DIFFUSER PIPE DIA. (IN.)			
2	4			
4	6			
6	10			
8	12			
10	14			
12	18			
14	20			

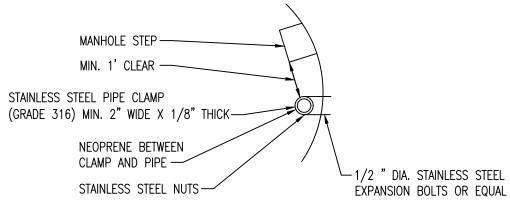


SUSSEX COUNTY ENGINEERING DEPARTMENT

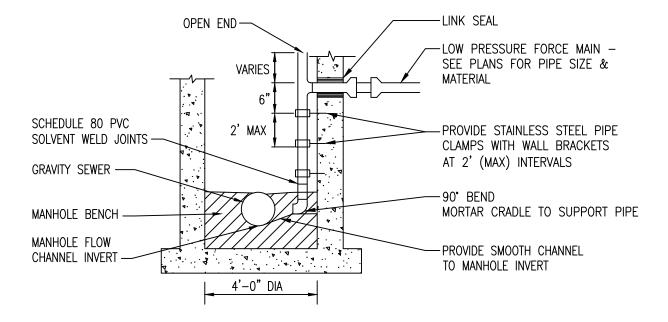
APPROVED: Sussex County Engineer

FORCE MAIN
DISCHARGE MANHOLE

DETAIL S-1.07



MANHOLE CONNECTION



NOTES:

- 1. CONNECTION CONFIGURATION ONLY APPLICABLE TO LOW PRESSURE SYSTEM CONNECTING INTO EXISTING MANHOLE. FOR NEW CONSTRUCTION, REFER TO DETAIL S-1.07.
- 2. COAT INTERIOR SURFACES OF MANHOLE WITH AMINE CURED EPOXY TWO (2) COATS 16.0 TO 24.0 MIL TOTAL.

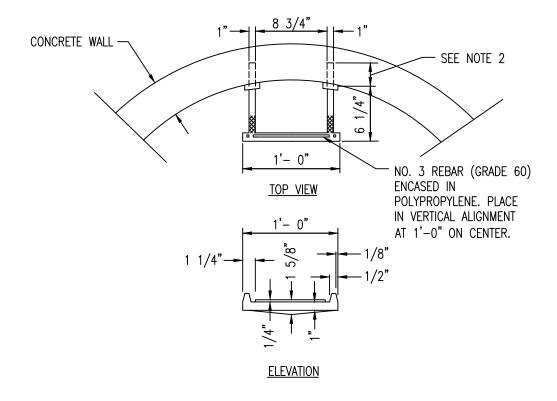


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

LOW PRESSURE FORCE MAIN DISCHARGE

DETAIL S-1.08



- 1. STEPS SHALL BE ORIENTED OVER BENCH AND NOT FLOW CHANNEL. BOTTOM STEP SHALL BE 12" MAX. FROM TOP OF BENCH.
- 2. EMBEDMENT LENGTH OF REBAR SHALL BE SUITABLE FOR 5" MIN. WALL THICKNESS.

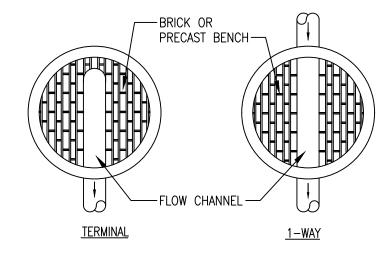


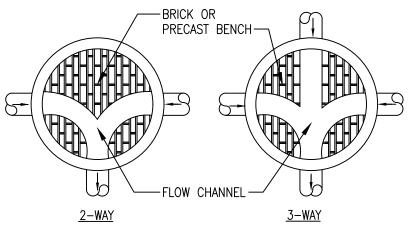
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex county engineer

MANHOLE STEP

DETAIL S-1.09





- PRECAST CONCRETE CHANNELS MAY BE PROVIDED AS AN ALTERNATIVE TO BRICK FLOW CHANNEL AND BENCH.
- 2. BENCH SHALL BE PROVIDED UP TO PIPE CROWN.

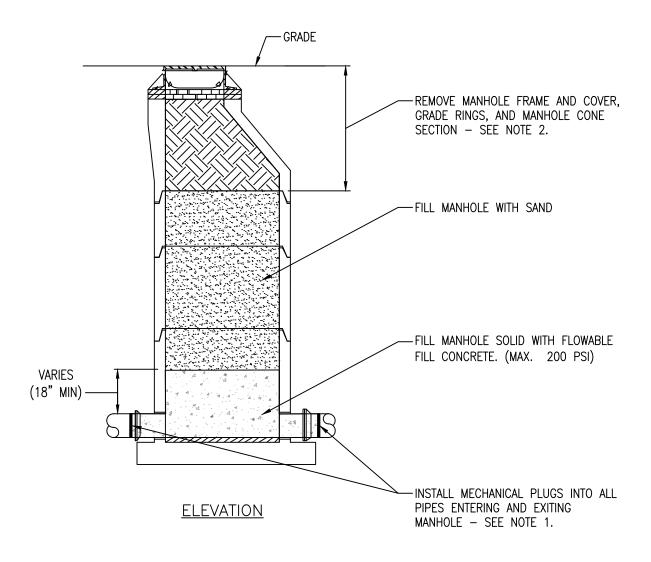


SUSSEX COUNTY ENGINEERING DEPARTMENT

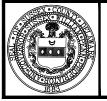
APPROVED: Sussex County Engineer

MANHOLE FLOW CHANNEL

DETAIL S-1.10



- FOR SEWERS 18" AND LARGER, PROVIDE MASONRY PLUG IN LIEU OF MECHANICAL PLUG.
- 2. ADDITIONAL DEPTH OF MANHOLE MAY REQUIRE REMOVAL DEPENDENT ON SITE—SPECIFIC CONDITIONS, AS DIRECTED BY COUNTY.

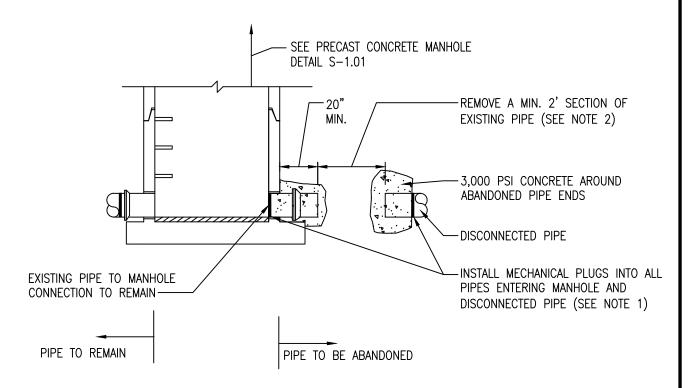


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex county Engineer

MANHOLE ABANDONMENT

DETAIL S-1.11



- FOR SEWERS 18" AND LARGER, PROVIDE MASONRY PLUG IN LIEU OF MECHANICAL PLUG.
- 2. ADDITIONAL PIPE MAY NEED TO BE REMOVED DEPENDING ON LOCATION OF EXISTING PIPE JOINTS.

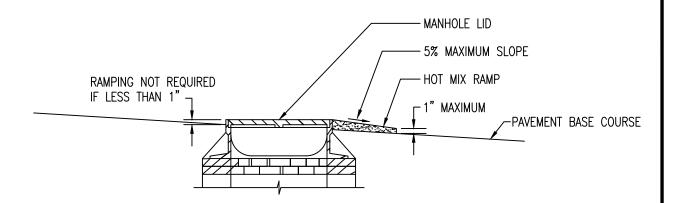


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

PIPE ABANDONMENT AT MANHOLE

DETAIL S-1.12



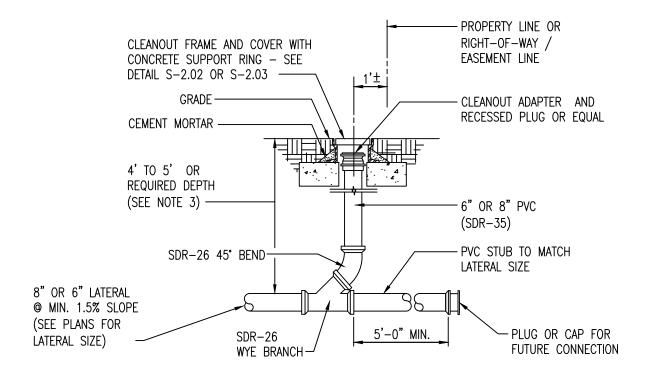
- I. HOT-MIX RAMPING SHALL BE INSTALLED AROUND ALL MANHOLES, VALVES, AND CLEANOUTS WITHIN PAVED AREA IN ACCORDANCE WITH THESE NOTES AT THE TIME OF HOT-MIX BASE INSTALLATION.
- 2. MAXIMUM EXPOSURE OF CASTING PRIOR TO RAMPING SHALL NOT EXCEED 3 INCHES. THIS MAY REQUIRE MULTIPLE HEIGHT ADJUSTMENTS OF THE CASTING DURING PAVEMENT INSTALLATION.
- MAXIMUM SLOPE OF RAMPING SHALL NOT EXCEED 5 PERCENT.
- 4. RAMPING MATERIAL SHALL BE MAINTAINED/REPAIRED UNTIL FINAL COURSE OF PAVEMENT IS INSTALLED.
- 5. RAMPING MATERIAL SHALL BE REMOVED JUST PRIOR TO FINAL PAVEMENT COURSE OVERLAY.
- 6. IF HOT-MIX RAMPING OCCURS ON A DELDOT MAINTAINED ROADWAY, RAMPING REQUIREMENTS MAY BE DIFFERENT THAN THOSE SHOWN ON THIS DETAIL.



SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

HOT-MIX RAMPING AT MANHOLE DETAIL S-1.13



- 1. CLEANOUT SHALL NOT TO BE LOCATED WITHIN LIMITS OF DITCH, SWALE, ETC.
- 2. MAINTAIN 10' MIN. SEPARATION BETWEEN SEWER AND WATER LINES.
- 3. MINIMUM DEPTH OF SEWER LATERAL AT ANY POINT INCLUDING UNDER DITCHES, SWALES, ETC. SHALL BE 30 INCHES. NOMINAL DEPTH SHALL BE AS NOTED ABOVE.
- 4. SIZE OF PVC LATERAL STUB TO MATCH LATERAL SIZE.
- 5. PROVIDE BETWEEN 3" AND 6" OF CLEARANCE BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
- 6. ALL CLEANOUT DEPTHS LABELED AS CRITICAL DEPTH LATERALS SHALL BE INSTALLED PER CONFIGURATION ON DETAIL S-2.05.
- 7. METALLIC DETECTABLE REINFORCED UNDERGROUND MARKING TAPE TO BE PLACED WITHIN ENTIRE LIMITS OF SEWER LATERAL TRENCH REFER TO DETAIL S—3.01 FOR CONFIGURATION.



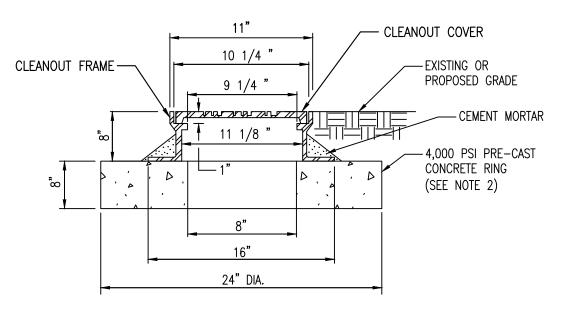
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex county engineer

SEWER LATERAL CLEANOUT

DETAIL S-2.01

LAST REVISED: 10/11/2023



FRAME AND COVER SECTION

- FRAME AND COVER ASSEMBLY SHALL BE CENTERED OVER CLEANOUT RISER.
- HDPE COMPOSITE SUPPORT RING BASE MAY BE SUBSTITUTED FOR CONCRETE RING IN NON-TRAFFIC AREA. HDPE SUPPORT RING IS NOT PERMITTED IN TRAFFIC BEARING ARFA.
- 3. CLEANOUT FRAME AND COVER SHALL BE INSTALLED BY UTILITY CONTRACTOR PRIOR TO SUBSTANTIAL COMPLETION INSPECTION FOR DEVELOPMENT PROJECTS.
- 4. MATERIAL FOR FRAME AND COVER SHALL BE HEAVY DUTY GRAY IRON CL35B MEETING THE REQUIREMENTS OF ASTM A48.
- 5. CLEANOUT COVER SHALL HAVE A RAISED DIAMOND PATTERN WITH A 2" MIN. RAISED "S" IMPRINTED IN SHARP FACE GOTHIC AT CENTER OF COVER. A SINGLE 1" MIN. WIDE PICKHOLE SHALL BE PROVIDED AT EDGE.
- 6. SEWER CLEANOUT COVERS LOCATED WITHIN A PEDESTRIAN WALKWAY MUST BE ADA COMPLIANT.
- 7. REFER TO CURRENT DELDOT REQUIREMENTS FOR INSTALLATIONS WITHIN DELDOT RIGHT-OF-WAY.



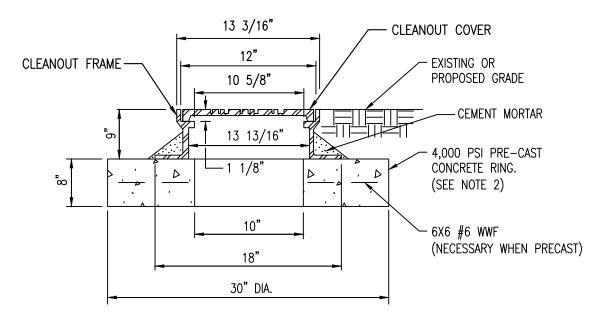
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

6" SEWER LATERAL CLEANOUT FRAME AND COVER

DETAIL S-2.02

DATE ISSUED: 5/31/2022



FRAME AND COVER SECTION

NOTES:

- 1. FRAME AND COVER ASSEMBLY SHALL BE CENTERED OVER THE CLEANOUT RISER.
- 2. HDPE COMPOSITE SUPPORT RING BASE MAY BE SUBSTITUTED FOR CONCRETE RING IN NON-TRAFFIC AREA. HDPE SUPPORT RING IS NOT PERMITTED IN TRAFFIC BEARING AREA.
- 3. CLEANOUT FRAME AND COVER SHALL BE INSTALLED BY UTILITY CONTRACTOR PRIOR TO SUBSTANTIAL COMPLETION INSPECTION FOR DEVELOPMENT PROJECTS.
- 4. MATERIAL FOR FRAME AND COVER SHALL BE HEAVY DUTY GRAY IRON CL35B MEETING THE REQUIREMENTS OF ASTM A48.
- 5. CLEANOUT COVER SHALL HAVE A RAISED DIAMOND PATTERN WITH A 2" MIN. RAISED "S" IMPRINTED IN SHARP FACE GOTHIC AT CENTER OF COVER. A SINGLE 1" MIN. WIDE PICKHOLE SHALL BE PROVIDED AT EDGE.
- SEWER CLEANOUT COVERS LOCATED WITHIN A PEDESTRIAN WALKWAY MUST BE ADA COMPLIANT.
- REFER TO CURRENT DELDOT REQUIREMENTS FOR INSTALLATIONS WITHIN DELDOT RIGHT-OF-WAY.



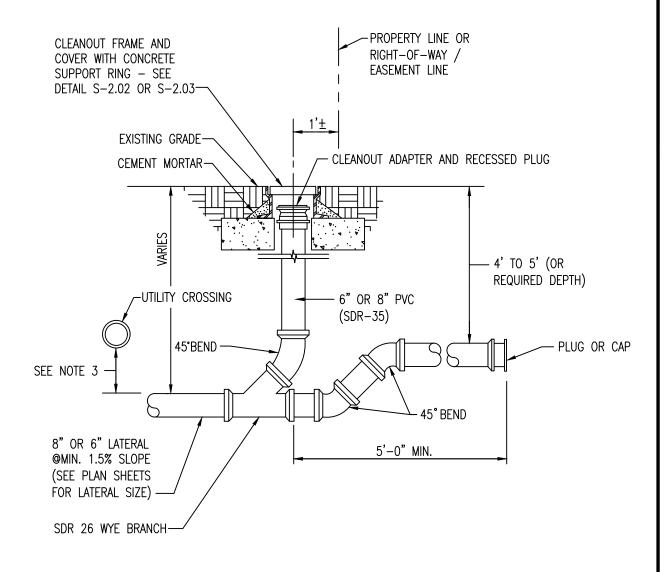
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

8" SEWER LATERAL CLEANOUT FRAME AND COVER

DETAIL S-2.03

DATE ISSUED: 5/31/2022



- 1. DEEP LATERAL CLEANOUT DETAIL APPLIES TO BOTH 6" AND 8" LATERALS.
- 2. A MINIMUM OF 3" CLEARANCE SHALL BE PROVIDED BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
- 3. MINIMUM CLEARANCE IS 18" TO WATER MAIN, AND 12" TO ALL OTHER UTILITIES.

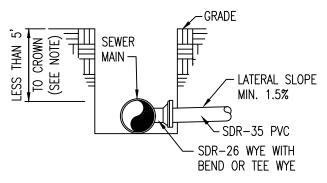


SUSSEX COUNTY ENGINEERING DEPARTMENT

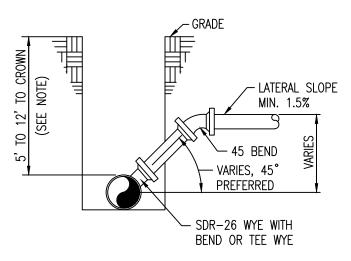
APPROVED: Sussex County Engineer

DEEP SEWER LATERAL CLEANOUT

DETAIL S-2.04



SHALLOW CONFIGURATION



DEEP CONFIGURATION

NOTE:

LATERALS SHOWN ON THE PLANS AS CRITICAL DEPTH LATERALS WILL BE INSTALLED IN THE SAME FASHION AS SHALLOW LATERALS REGARDLESS OF THE TRENCH DEPTH. FOR MAINS GREATER THAN 12' TO CROWN SEE RISER DETAIL S-2.06.



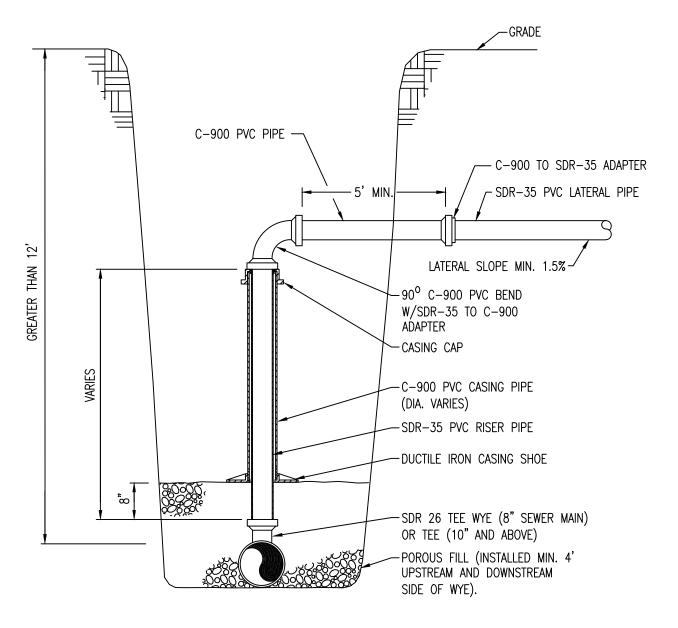
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

SEWER LATERAL CONNECTIONS

DETAIL S-2.05

DATE ISSUED: 10/5/2022



- 1. LATERAL RISER DETAIL APPLIES TO BOTH 6 AND 8—INCH LATERALS. SIZE OF REQUIRED ADAPTERS, LATERALS, BENDS, CASING PIPES AND SHOES SHALL BE COORDINATED WITH THE REQUIRED LATERAL SIZE.
- 2. THE RISER CONFIGURATION SHOWN ABOVE REFLECTS THE DEEP SEWER RISER KIT AS MANUFACTURED BY THE HARRINGTON COMPANY (HARCO). AN ALTERNATE ALL—PLASTIC VERTICAL RISER KIT AS MANUFACTURED BY NORTH AMERICAN PIPE CORPORATION (NAPCO) MAY BE USED AS A SUBSTITUTE.

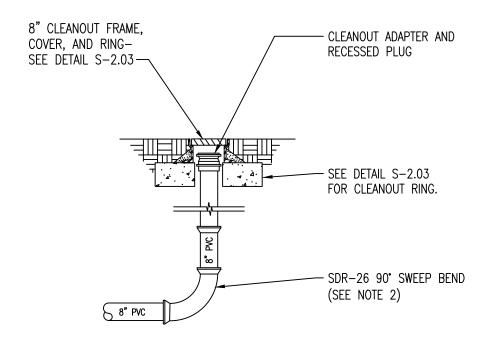


SUSSEX COUNTY ENGINEERING DEPARTMENT

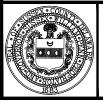
APPROVED: Sussex County Engineer

SEWER LATERAL RISER DETAIL S-2.06

DATE ISSUED: 10/5/2022



- 1. PROVIDE BETWEEN 3" AND 6" OF CLEARANCE BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
- 2. STONE BEDDING SHALL BE PLACED AROUND 90° BEND PER DETAIL S-2.09 FOR ALL DEPTHS.
- 3. SEE DETAIL S-1.01 FOR CONCRETE COLLAR REQUIREMENTS.

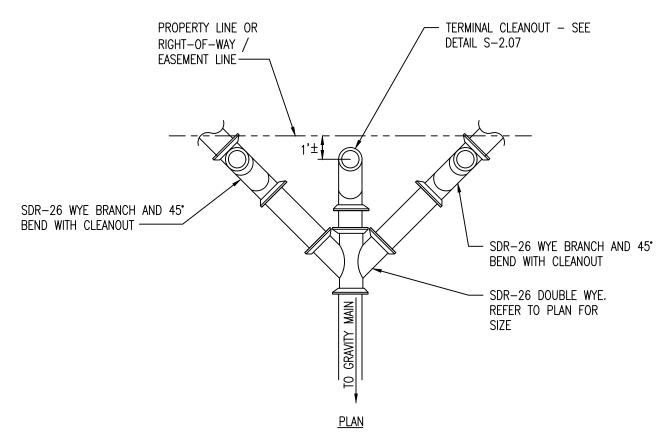


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

SEWER TERMINAL CLEANOUT

DETAIL S-2.07



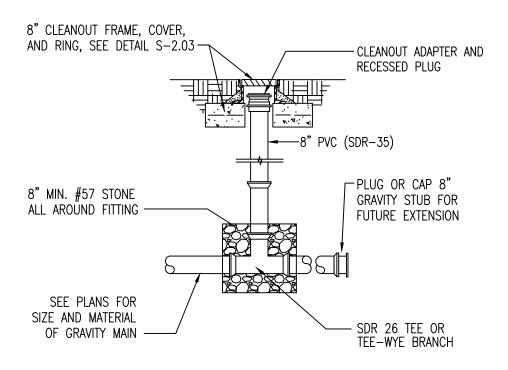
- 1. REFER TO APPROPRIATE SEWER CLEANOUT DETAILS FOR STANDARD CONFIGURATIONS.
- 2. REFER TO PLAN FOR LATERAL AND CLEANOUT SIZE.



SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

DUAL WYE SEWER CLEANOUT DETAIL S-2.08



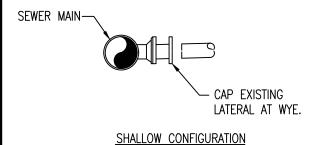
- 1. PROVIDE BETWEEN 3" AND 6" OF CLEARANCE BETWEEN CLEANOUT COVER AND CLEANOUT TOP.
- 2. ALL INVERTS OF TEE-WYE CONNECTIONS SHALL BE FIELD SURVEYED FOR FINAL AS-BUILTS.
- 3. TEE INSPECTION PORT SHALL BE REMOVED AT THE TIME OF EXTENSION OF GRAVITY SEWER SYSTEM.

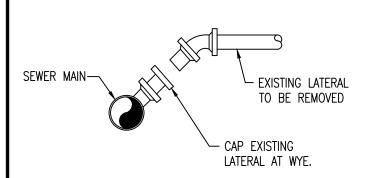


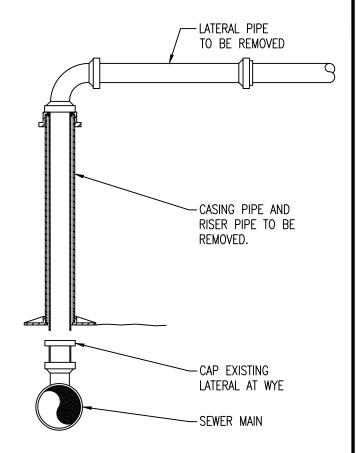
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

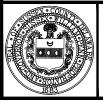
TEE INSPECTION PORT FOR FUTURE SEWER EXTENSIONS DETAIL S-2.09







DEEP CONFIGURATION

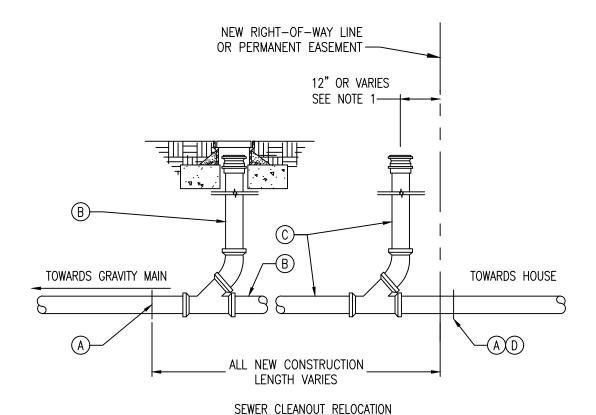


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex county engineer

SEWER LATERAL CAPPING

DETAIL S-2.10



WORK SCOPE

- (A) CLEANLY CUT EXISTING LATERAL ON ROAD SIDE OF EXISTING CLEANOUT AND AT NEW TIE-IN LOCATION.
- (B) REMOVE VERTICAL CLEANOUT APPURTENANCES AND SECTION OF EXISTING SEWER LATERAL UP TO NEW TIE-IN LOCATION.
- © INSTALL NEW SECTION OF SEWER LATERAL INCLUDING NEW CLEANOUT, WYE, BEND AND RELATED APPURTENANCES. (SEE GENERAL NOTE 2)
- D TIE-IN TO EXISTING HOUSE SIDE SEWER LATERAL USING AN APPROPRIATE COUPLING CONNECTION OR REPAIR SLEEVE AS NEEDED.

NOTES:

- LOCATION OF NEW CLEANOUT SHALL BE AS NOTED ON THE PLANS OR IN THE UTILITY STATEMENT, OR AS DIRECTED BY THE SUSSEX COUNTY INSPECTOR.
- SLOPE OF NEW SECTION OF SEWER LATERAL SHALL MATCH EXISTING UNLESS DIRECTED OTHERWISE BY THE SUSSEX COUNTY INSPECTOR.
- REMOVAL AND/OR TIE—IN LOCATIONS SHALL BE A MINIMUM OF 2 FEET FROM EXISTING PIPE JOINTS.
- 4. WORK SHALL BE SCHEDULED AND PERFORMED IN A MANNER TO MINIMIZE SEWER SERVICE DISRUPTION.
- 5. REFER TO SUSSEX COUNTY DETAIL S-2.01 FOR NEW SEWER LATERAL CLEANOUT.

GENERAL NOTES:

- THIS DETAIL APPLIES TO REQUIRED HORIZONTAL RELOCATION OF A SEWER CLEANOUT DUE TO CONFLICT WITH ROADWAY OR OTHER SITE CONSTRUCTION ACTIVITIES.
- 2. NEW MATERIALS PROPOSED TO BE USED FOR LATERAL EXTENSION SHALL BE SUBJECT TO COUNTY REVIEW AND APPROVAL. "FERNCO" TYPE ADAPTORS AND COUPLINGS ARE NOT PERMITTTED.



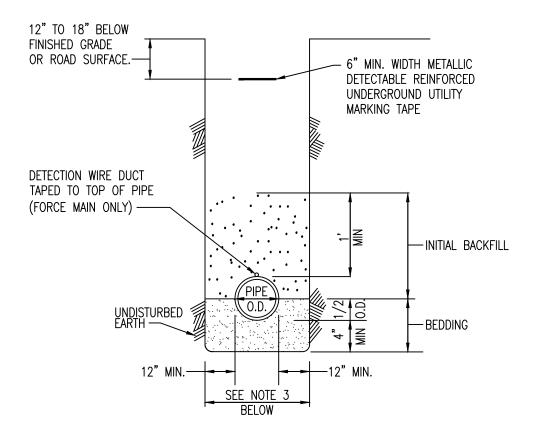
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

SEWER LATERAL CLEANOUT RELOCATION

DETAIL S-2.11

LAST REVISED: 10/11/2023



- 1. THIS DETAIL APPLIES TO BOTH GRAVITY AND FORCE MAIN SEWER INSTALLATIONS.
- 2. #57 STONE IS REQUIRED FOR BEDDING MATERIAL AND INITIAL BACKFILL TO 12"
 ABOVE THE PIPE CROWN FOR ALL SEWER INSTALLATIONS 12' DEEP AND GREATER.
 FOR INSTALLATIONS LESS THAN 12' DEEP, INITIAL BACKFILL MATERIAL
 REQUIREMENTS MAY BE MODIFIED BASED ON FIELD CONDITIONS, AS APPROVED BY
 THE COUNTY. ABOVE INITIAL BACKFILL, MATERIAL MEETING THE REQUIREMENTS OF
 TYPE F BORROW PER DELDOT'S SPECIFICATIONS SHALL BE USED.
- 3. FOR INSTALLATION WITHIN LIMITS OF DELDOT ROADWAY AND/OR RIGHT-OF-WAY, TRENCH CONFIGURATIONS AND BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH CURRENT DELDOT REQUIREMENTS.

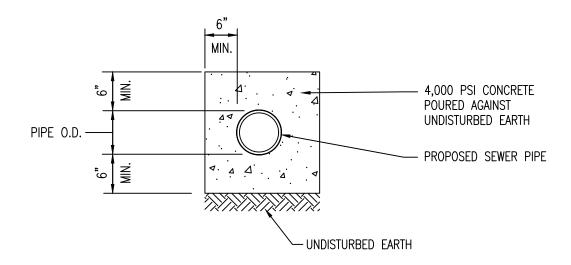


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

SEWER TRENCH

DETAIL S-3.01



- SEWER ENCASEMENT AT UTILITY CROSSING SHALL BE AT LOCATIONS SHOWN ON DESIGN PLANS OR REQUIRED BY THE COUNTY. ENCASEMENT SHALL EXTEND A MINIMUM OF FIVE (5) FEET ON EITHER SIDE OF UTILITY CROSSING, EXCEPT AT WATER MAINS.
- 2. SEWER ENCASEMENT AT WATER MAIN CROSSINGS SHALL BE A MINIMUM OF TEN (10) FEET IN LENGTH OR AS DIRECTED BY THE COUNTY ENGINEER.
- 3. THE CROSSING SHALL BE ARRANGED SUCH THAT THE SEWER PIPE JOINTS WILL BE EQUAL DISTANCES AND AS FAR AS POSSIBLE FROM JOINTS OF CROSSING UTILITY PIPE.



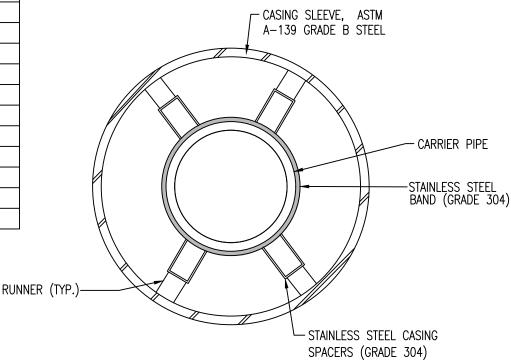
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex county Engineer

SEWER ENCASEMENT

DETAIL S-3.02

CARRIER PIPE (IN.)	MINIMUM O.D. CASING PIPE (IN.)				
4	10				
6	12				
8	16				
10	18				
12	20				
14	24				
15	26				
16	30				
18	32				
20	34				
21	36				
24	36				
30	42				



- DETAIL APPLIES TO BOTH JACK AND BORE AND OPEN CUT INSTALLATIONS.
- 2. END SEAL SHALL BE INSTALLED ON EACH END OF CASING PIPE.
- CASING SPACERS SHALL BE INSTALLED 1' (MAX.) FROM EACH SIDE OF ANY CARRIER PIPE JOINT, AND A MINIMUM OF 6' ON CENTER ALONG THE CARRIER PIPE IN BETWEEN JOINTS.
- 4. PREFERRED CONFIGURATION IS WITH CARRIER PIPE CENTERED WITHIN CASING PIPE. OFF—CENTERED CONFIGURATION MAY BE UTILIZED DEPENDING ON SITE CONDITIONS AS APPROVED BY THE COUNTY.
- 5. SEE TABLE ABOVE FOR MINIMUM CASING PIPE SIZE. IF RESTRAINED JOINTS ARE USED, CASING PIPE DIAMETER SHALL BE MODIFIED AS REQUIRED TO ACCOMMODATE THE PIPE RESTRAINTS.

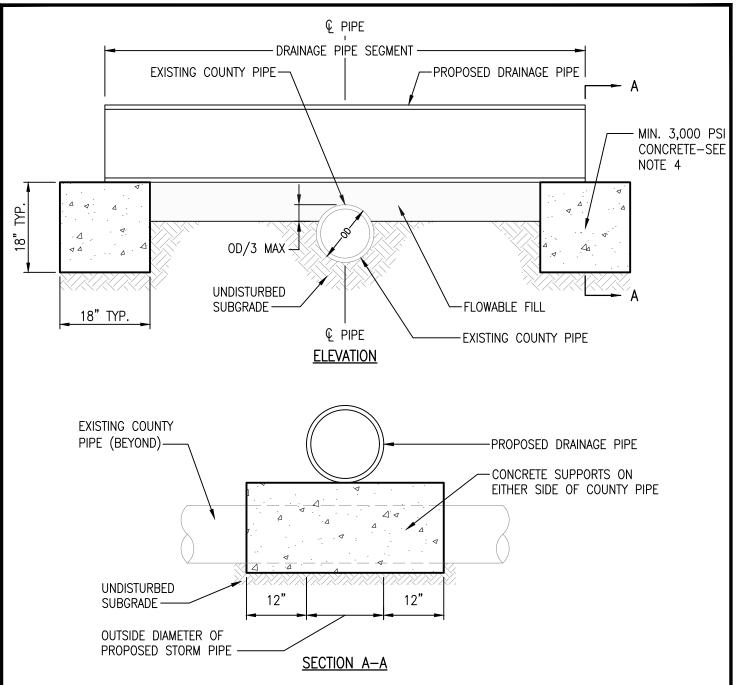


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex county Engineer

CASING SLEEVE INSTALLATION

DETAIL S-3.03



- 1. DETAIL APPLIES TO CROSSINGS WITH LESS THAN 12" CLEARANCE BETWEEN PROPOSED DRAINAGE PIPE AND EXISTING COUNTY PIPE. FOR CROSSINGS WITH DRAINAGE PIPE BELOW COUNTY PIPE, A SPECIAL PIPE SUPPORT DETAIL MUST BE SUBMITTED TO THE COUNTY FOR APPROVAL. COUNTY PIPE REFER TO SEWER OR WATER PIPE, AS APPLICABLE.
- 2. DRAINAGE PIPE SHALL BE PLACED SUCH THAT CENTERLINE OF PIPE SEGMENT IS WITHIN 12" OF CENTERLINE OF COUNTY PIPE.
- 3. ALL EXCAVATION IN VICINITY OF COUNTY PIPE SHALL BE ACCOMPLISHED BY HAND EXCAVATION. SUBGRADE BELOW MAX. EXCAVATION LIMITS SHOWN SHALL REMAIN UNDISTURBED.
- 4. CONCRETE SUPPORTS AT DRAINAGE PIPE JOINTS SHALL BE FORMED AGAINST UNDISTURBED SUBGRADE. FOR NON-CONCRETE DRAINAGE PIPES, SUPPORTS SHALL BE LOCATED 18 INCHES CLEAR ON EITHER SIDE OF COUNTY PIPE.
- 5. FOLLOWING PLACEMENT OF DRAINAGE PIPE SEGMENT, FLOWABLE FILL SHALL BE APPLIED TO COMPLETELY FILL VOIDS BENEATH PIPE. REFER TO DELDOT OR OTHER THIRD PARTY SPECIFICATIONS FOR FILL REQUIREMENTS ABOVE THIS LEVEL.



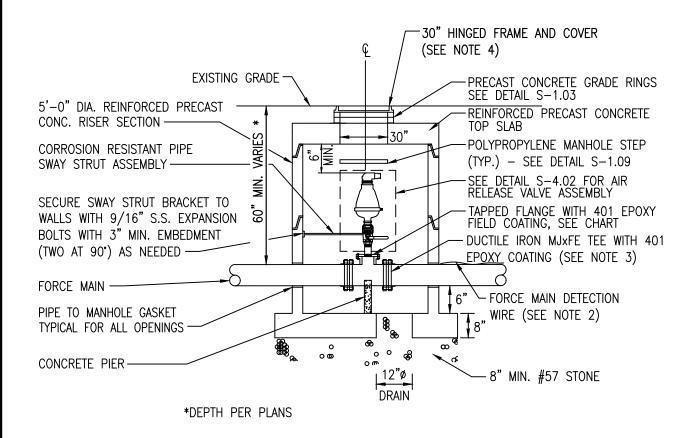
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

PIPE CROSSING PROTECTION

DETAIL S-3.04

DATE ISSUED: 06/13/2022



- CONCRETE COLLAR NOT SHOWN FOR CLARITY. FOR CONCRETE COLLAR REQUIREMENTS, REFER TO DETAIL S-1.01.
- 2. ROUTE DETECTION WIRE OUTSIDE OF ARV AND PROVIDE TONING WIRE VALVE BOX ADJACENT TO ARV STRUCTURE. SEE DETAIL S-4.07.
- 3. DUCTILE IRON FLANGE TEE WILL BE FORCE MAIN SIZE x 4" TEE.
- 4. HINGED FRAME AND COVER SHALL BE PER EAST JORDAN IRON WORKS PRODUCT NO. 00148064L01, OR APPROVED EQUAL.

FORCE MAIN DIA.	ARV	TAP FLANGE		
<u>≤</u> 16"	2"	4"x2"		
> 16"	3"	4"x3"		

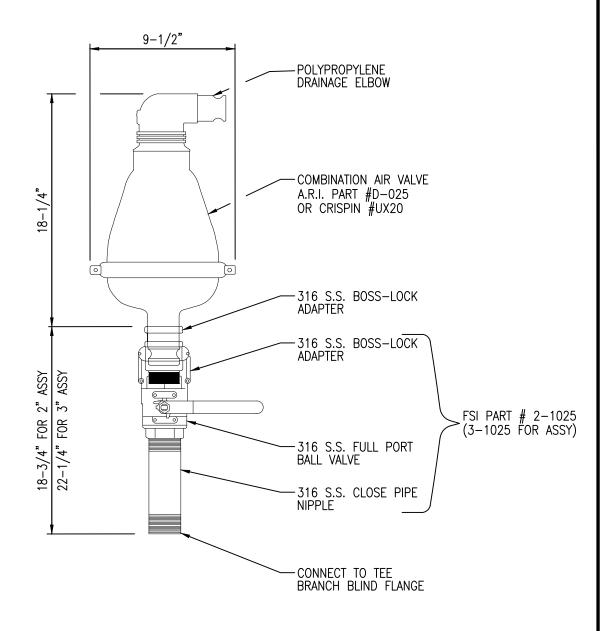


SUSSEX COUNTY ENGINEERING DEPARTMENT

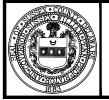
APPROVED: SUSSEX COUNTY ENGINEER

SEWER FORCE MAIN AIR RELEASE VALVE DETAIL S-4.01

DATE ISSUED: 05/31/2022



NOTE: IF AIR RELEASE MANHOLE IS A TIGHT FIT, THE CRISPIN ARV CAN BE USED PER COUNTY APPROVAL.

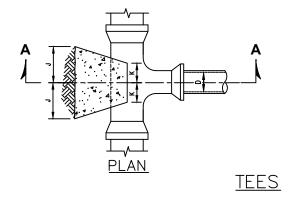


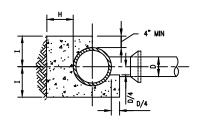
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

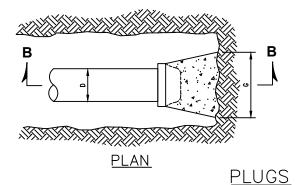
AIR RELEASE VALVE ASSEMBLY

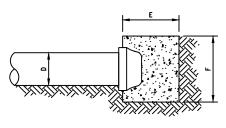
DETAIL S-4.02



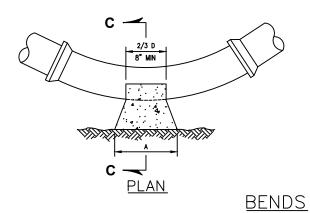


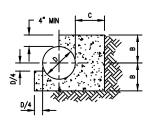
SECTION A-A



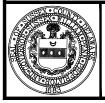


SECTION B-B





SECTION C-C



SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

CONCRETE BUTTRESS CONFIGURATIONS

DETAIL S-4.03

BUTTRESS DIMENSIONS									
CONFIGURATION		PIPE DIAMETER (D) IN INCHES (I.D.)							
		1.5	2	3	4	6	8	10	14
90°									
	Α	12	12	15	24	24	30	49	69
	В	3	3	4	6	6	9	13	18
	С	12	18	18	22	22	21	24	24
4 5 °	Α	6	8	11	15	15	20	37	51
	В	2	4	6	7	7	8	19	26
	С	9	12	12	8	8	9	22	22
22.5*	Α	4	6	8	9	9	12	26	37
22.3	В	1	3	4	7	7	8	13	19
	С	6	9	9	8	8	9	12	12
11.25°	Α	3	4	6	6	6	8	19	26
	В	1	2	3	7	7	8	10	13
	С	6	9	9	7	7	7	10.5	10.5
PLUG									
	Ε	6	9	9	6	6	8	10.5	10.5
	F	7	9	13	12	12	16	42	58
	G	4	5	7	15	17	23	21	29
TEE									
	Н	12	18	18	8	8	9	21	21
	- 1	4	5	7	8	8	10	21	29
	J	2	3	4	7	7	9	11	15
	K	2	2	4	6	6	8	12	14

- SEE DETAIL S-4.03 FOR CONFIGURATIONS.

NOTES:

- 1. ALL CONCRETE TO HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
- 2. BUTTRESS DIMENSIONS GIVEN ARE MINIMUM DIMENSIONS BASED UPON 3000 PSF MINIMUM SOIL BEARING CAPACITY AND 150 PSI MAXIMUM INTERNAL PIPE PRESSURE. PARAMETERS OUTSIDE OF THESE TOLERANCES WILL REQUIRE A SPECIAL BUTTRESS DESIGN APPROVED BY THE COUNTY.
- 3. ALL CONCRETE SHALL BE POURED AGAINST UNDISTURBED EARTH.
- 4. TEE DIMENSIONS IN TABLE SHALL BE USED FOR WYES.

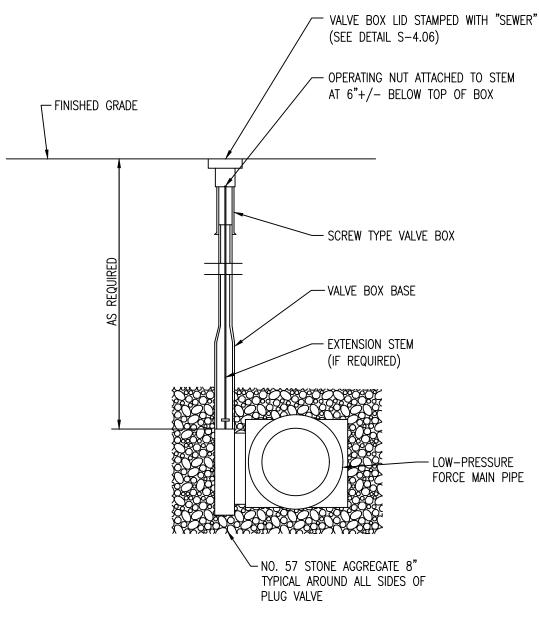


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

CONCRETE BUTTRESS DIMENSIONS

DETAIL S-4.04



- 1. CONCRETE COLLAR NOT SHOWN FOR CLARITY. REFER TO DETAIL S-4.06 FOR COLLAR REQUIREMENTS.
- 2. LID MUST BE ADA COMPLIANT IF LOCATED WITHIN A PEDESTRIAN WALKWAY.

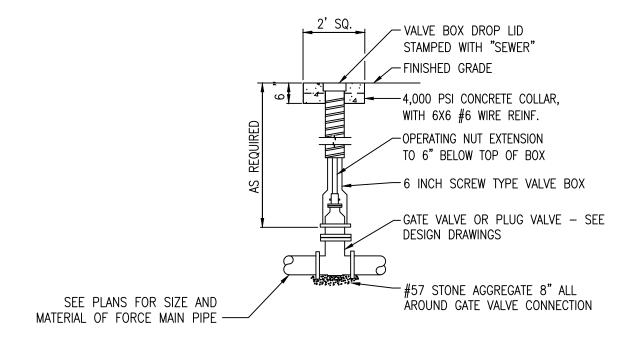


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

SEWER FORCE MAIN PLUG VALVE

DETAIL S-4.05



- I. IF VALVE IS LOCATED WITHIN PAVEMENT, CONCRETE COLLAR IS NOT REQUIRED. SEE ALSO NOTE 2 ON DETAIL S-1.01.
- 2. EXTEND TONING WIRE INTO VALVE BOX. SEE DETAIL S-4.07.
- 3. LID MUST BE ADA COMPLIANT IF LOCATED WITHIN A PEDESTRIAN WALKWAY.

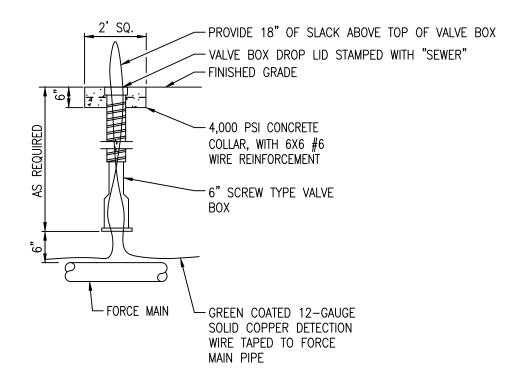


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

SEWER FORCE MAIN ISOLATION VALVE

DETAIL S-4.06



- IF TONING WIRE BOX IS LOCATED WITHIN PAVEMENT, CONCRETE COLLAR IS NOT REQUIRED. SEE ALSO NOTE 2 ON DETAIL S-1.01 REGARDING LOCATION WITHIN DELDOT ROADWAY.
- 2. LID MUST BE ADA COMPLIANT IF LOCATED WITHIN A PEDESTRIAN WALKWAY.

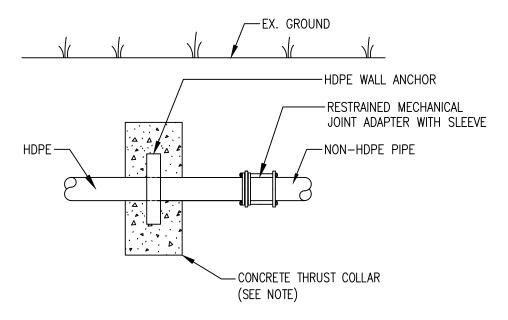


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

SEWER FORCE MAIN TONING WIRE BOX

DETAIL S-4.07



ELEVATION

NOTE:

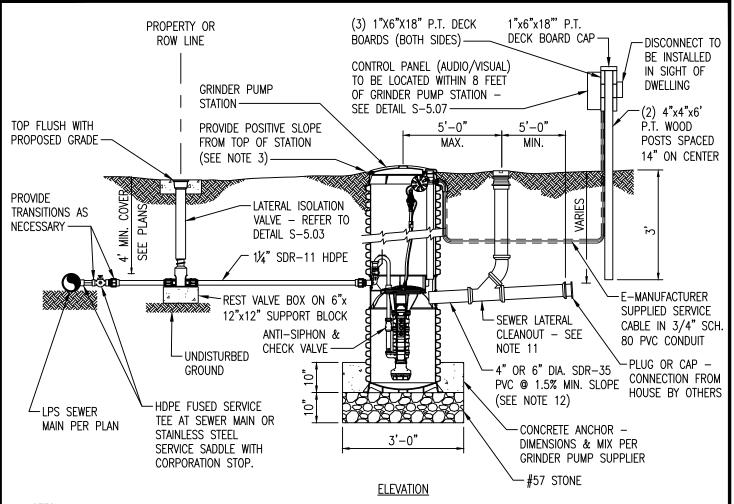
FOR TRANSITIONS BETWEEN HDPE PIPE AND NON-HDPE PIPE, AN APPROPRIATELY DESIGNED CONCRETE THRUST COLLAR AROUND A POLY WALL ANCHOR SHALL BE INCORPORATED TO ACCOUNT FOR THE POISSON EFFECT OF THE HDPE PIPE. AS AN ALTERNATIVE, ADDITIONAL JOINT RESTRAINTS SHALL BE INCORPORATED OUTSIDE THE LIMITS OF HDPE PIPING, AS APPROVED BY THE COUNTY.



SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

TRANSITION FROM HDPE TO NON-HDPE PIPE DETAIL S-4.08



- 1. THE SEWER CONTRACTOR SHALL PROVIDE AND INSTALL ALL ITEMS AS INDICATED. REFER TO CURRENT COUNTY GRINDER PUMP CONNECTION PROCEDURES FOR OVERALL SEQUENCE OF INSTALLATION, OR AS SPECIFIED IN PLANS AND/OR SPECIFICATIONS.
- 2. SEWER LATERAL CONNECTION FROM THE HOUSE TO THE PVC STUB SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER/PRIVATE PLUMBER.
- 3. THE CONTRACTOR SHALL GRADE AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BASIN TOP. ALL FINISHED GRADES AROUND THE BASIN SHALL BE 1-3 IN. BELOW REMOVABLE BASIN LID. MOUNDING OF SOIL AROUND THE BASIN IS NOT PERMITTED.
- 4. ALL VENTS IN GRINDER PUMP ENCLOSURE COVER SHALL BE COVERED WITH GORTEX VENT COVER.
- 5. CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE TEMPORARY POWER AND WATER TO CONDUCT PUMP TEST ON SITE FOLLOWING INSTALLATION OF GRINDER PUMP STATION AND ALL HOOK-UPS TO THE FORCE MAIN HAVE BEEN COMPLETED.
- 6. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF CONTROL PANEL, POWER DISCONNECT, PUMP CABLING, DISCONNECT SWITCH, AND ALL RELATED INCIDENTALS PER THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE. CONTRACTOR IS <u>NOT</u> RESPONSIBLE FOR POWER CONNECTION BETWEEN HOUSE ELECTRICAL PANEL AND DISCONNECT SWITCH.
- 7. PROVIDE GREEN COATED 12-GAUGE SOLID COPPER DETECTION WIRE TAPED TO TOP OF PIPE, WITH 18 INCHES OF SLACK PROVIDED ABOVE TOP OF VALVE BOX.
- 8. LOCATION OF GRINDER PUMP ASSEMBLY SHALL BE WITHIN DESIGNATED PRIVATE EASEMENT PER PLAN. CONTRACTOR SHALL COORDINATE WITH HOMEOWNER PRIOR TO ENTERING PROPERTY AND RESTORE ALL DISTURBED AREAS TO EXISTING CONDITION.
- 9. GRINDER PUMP ENCLOSURE, INTERNAL COMPONENTS AND CONNECTIONS SHALL BE D-SERIES WETWELL/DRYWELL GRINDER PUMP STATION AS MANUFACTURED BY ENVIRONMENT ONE CORPORATION (E/ONE), OR APPROVED EQUAL. D-SERIES MODEL SHALL BE AS SPECIFIED ON PLANS OR IN SPECIFICATIONS.
- 10. THIS DETAIL IS APPLICABLE FOR GRINDER PUMP INSTALLATION IN DESIGNATED NON-FLOODPLAIN AREAS ONLY SEE DETAIL S-5.02 FOR GRINDER PUMP INSTALLATION IN FLOODPLAIN AREAS.
- 11. IN RESIDENTIAL APPLICATIONS, STANDARD SEWER LATERAL CLEANOUT SHALL BE MODIFIED TO OMIT FRAME, COVER AND CONCRETE SUPPORT RING CLEANOUT CAP SHALL BE SET FLUSH WITH ADJACENT GRADE.
- 12. PROVIDE A SHORT SECTION OF SCH. 40 PVC PIPE OUT OF GRINDER PUMP ENCLOSURE W/ADAPTER TO CONNECT TO SDR-35 PIPE.



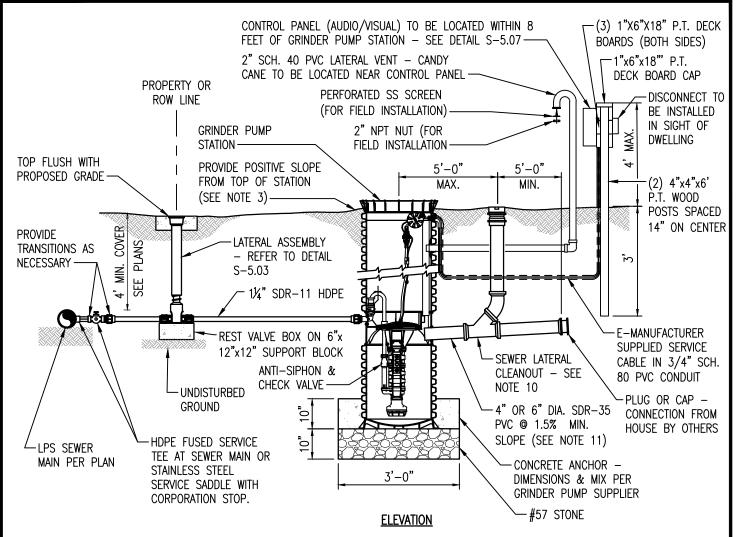
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Sussex County Engineer

STANDARD GRINDER PUMP ASSEMBLY

DETAIL S-5.01

DATE ISSUED: 6/26/2023



- 1. THE SEWER CONTRACTOR SHALL PROVIDE AND INSTALL ALL ITEMS AS INDICATED. REFER TO CURRENT COUNTY GRINDER PUMP CONNECTION PROCEDURES FOR OVERALL SEQUENCE OF INSTALLATION, OR AS SPECIFIED IN PLANS AND/OR SPECIFICATIONS.
- 2. SEWER LATERAL CONNECTION FROM THE HOUSE TO THE PVC STUB SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER/PRIVATE PLUMBER.
- 3. THE CONTRACTOR SHALL GRADE AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BASIN TOP. ALL FINISHED GRADES AROUND THE BASIN SHALL BE 1-3 IN. BELOW REMOVABLE BASIN LID. MOUNDING OF SOIL AROUND THE BASIN IS NOT PERMITTED.
- 4. CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE TEMPORARY POWER AND WATER TO CONDUCT PUMP TEST ON SITE FOLLOWING INSTALLATION OF GRINDER PUMP STATION AND ALL HOOK-UPS TO THE FORCE MAIN HAVE BEEN COMPLETED.
- 5. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF CONTROL PANEL, POWER DISCONNECT, PUMP CABLING, DISCONNECT SWITCH, AND ALL RELATED INCIDENTALS PER THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE. CONTRACTOR IS NOT RESPONSIBLE FOR POWER CONNECTION BETWEEN HOUSE ELECTRICAL PANEL AND DISCONNECT SWITCH.
- 6. PROVIDE GREEN COATED 12-GAUGE SOLID COPPER DETECTION WIRE TAPED TO TOP OF PIPE, WITH 18 INCHES OF SLACK PROVIDED ABOVE TOP OF VALVE BOX.
- 7. LOCATION OF GRINDER PUMP ASSEMBLY SHALL BE WITHIN DESIGNATED PRIVATE EASEMENT PER PLAN. CONTRACTOR SHALL COORDINATE WITH HOMEOWNER PRIOR TO ENTERING PROPERTY AND RESTORE ALL DISTURBED AREAS TO EXISTING CONDITION.
- 8. GRINDER PUMP ENCLOSURE, INTERNAL COMPONENTS AND CONNECTIONS SHALL BE D-SERIES WETWELL/DRYWELL GRINDER PUMP STATION AS MANUFACTURED BY ENVIRONMENT ONE CORPORATION (E/ONE), OR APPROVED EQUAL. D-SERIES MODEL SHALL BE AS SPECIFIED ON PLANS OR IN SPECIFICATIONS.
- 9. THIS DETAIL IS APPLICABLE FOR GRINDER PUMP INSTALLATION IN DESIGNATED FLOODPLAIN AREAS ONLY.
- 10. IN RESIDENTIAL APPLICATIONS, STANDARD SEWER LATERAL CLEANOUT SHALL BE MODIFIED TO OMIT FRAME, COVER AND CONCRETE SUPPORT RING. CLEANOUT CAP SHALL BE SET FLUSH WITH ADJACENT GRADE.
- 11. PROVIDE A SHORT SECTION OF SCH. 40 PVC PIPE OUT OF GRINDER PUMP ENCLOSURE W/ADAPTER TO CONNECT TO SDR-35 PIPE.

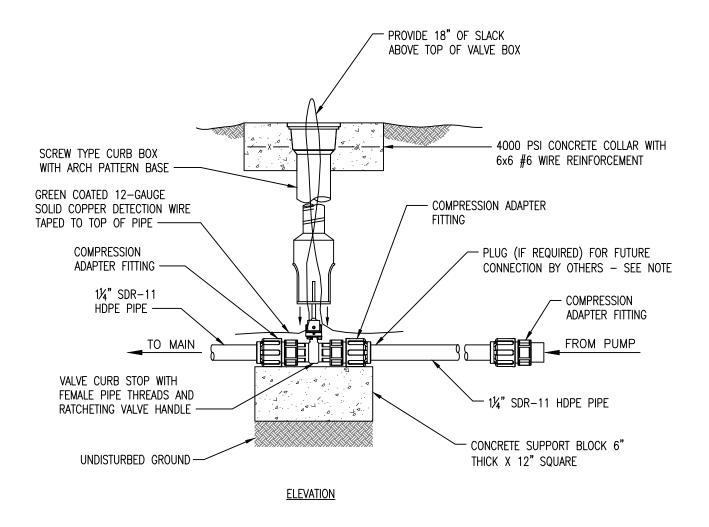


SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: Journal of Checklery
SUSSEX COUNTY ENGINEER

STANDARD GRINDER PUMP ASSEMBLY (FLOODPLAIN AREAS) DETAIL S-5.02

DATE ISSUED: 6/26/2023



NOTE: FOR APPLICATIONS WHERE A GRINDER PUMP STATION IS NOT INSTALLED AS PART OF THE WORK, CONTRACTOR SHALL FURNISH AND INSTALL A SCHEDULE 80 PVC MALE THREADED PLUG INTO THE END OF VALVE ASSEMBLY FOR FUTURE CONNECTION.

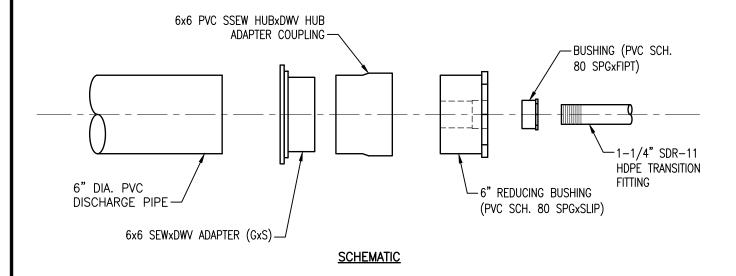


SUSSEX COUNTY ENGINEERING DEPARTMENT

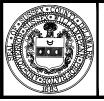
APPROVED: Sussex COUNTY ENGINEER

LATERAL ISOLATION VALVE DETAIL S-5.03

DATE ISSUED: 1/18/2023



NOTE: THIS DETAIL REPRESENTS A DISCHARGE CONNECTION FROM A 1-1/4" LPS PIPE TO A 6" DIAMETER GRAVITY SEWER MAIN OR LATERAL. FOR DISCHARGE CONFIGURATION WITH PIPE SIZES THAT VARY FROM THOSE SHOWN ABOVE, APPROPRIATELY SIZED FITTINGS/ADAPTERS SHALL BE INCORPORATED.



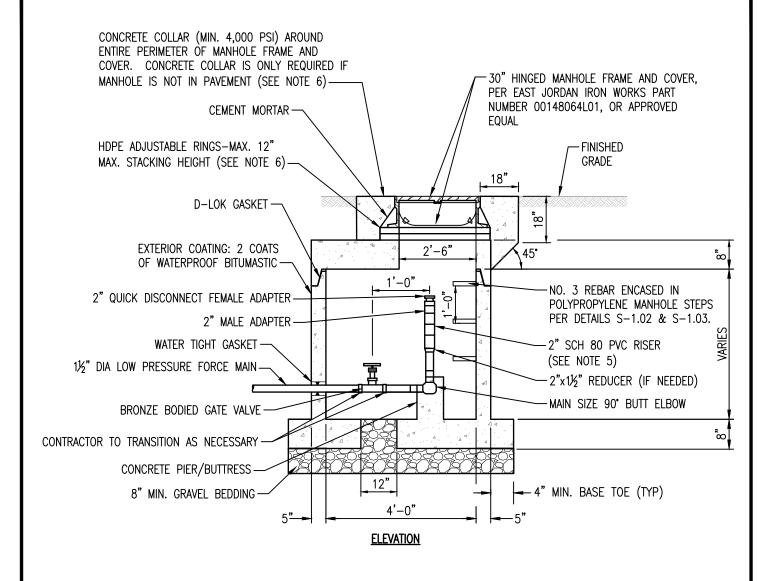
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: SUSSEX COUNTY ENGINEER

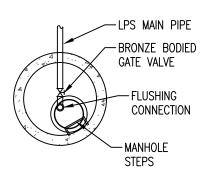
LPS DISCHARGE CONNECTION

DETAIL S-5.04

LAST REVISED: 09/09/2022



- 1. MANHOLE RISER SECTION SHALL CONFORM TO DETAIL S-1.01.
- 2. ALL CONNECTIONS WITHIN MANHOLE SHALL BE SOLVENT WELD OR THREADED.
- 3. ALL THREADED PIPE AND FITTINGS SHALL BE SCHEDULE 80 PVC.
- 4. PROVIDE GREEN COATED 12-GAUGE SOLID COPPER DETECTION WIRE TAPED TO TOP OF FORCE MAIN PIPE. PROVIDE 18" OF SLACK ABOVE TOP OF MANHOLE AND WRAP TO TOP MANHOLE STEP.
- 5. RISER PIPE SHALL BE LATERALLY SUPPORTED FROM MANHOLE WALLS.
- 6. FOR MANHOLE LOCATIONS IN DELDOT MAINTAINED ROADWAYS REFER TO CURRENT DELDOT REQUIREMENTS WITH RESPECT TO CONCRETE COLLAR PLACEMENT AND ALLOWABLE MATERIALS FOR GRADE ADJUSTMENT RINGS.
- 7. IF LOW PRESSURE SEWER MAIN IS DIFFERENT IN SIZE TO THAT SHOWN, PROVIDE THE APPROPRIATELY SIZED FITTINGS TO MAKE TRANSITIONS.
- 8. GROUT BOTTOM OF MANHOLE TO SLOPE TOWARD 12" DRAIN HOLE.



PLAN VIEW



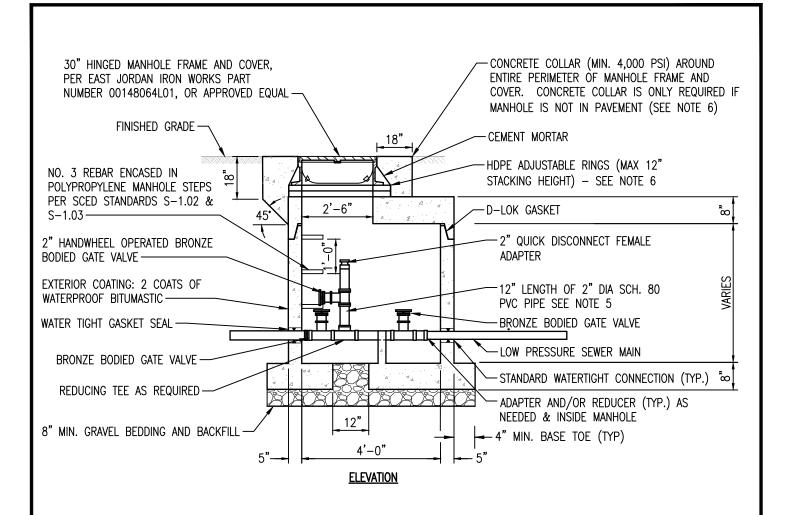
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: SUSSEX COUNTY ENGINEER

TERMINAL FLUSHING CONNECTION

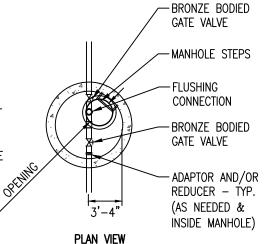
DETAIL S-5.05

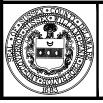
LAST REVISED: 09/09/2022





- 1. MANHOLE SHALL CONFORM TO DETAIL S-1.01.
- 2. ALL CONNECTIONS WITHIN MANHOLE SHALL BE SOLVENT WELD OR THREADED.
- 3. ALL THREADED PIPE AND FITTINGS SHALL BE SCHEDULE 80 PVC.
- 4. PROVIDE GREEN COATED 12-GAUGE SOLID COPPER DETECTION WIRE TAPED TO TOP OF PIPE. PROVIDE 18" OF SLACK ABOVE TOP OF MANHOLE AND WRAP TO TOP MANHOLE STEP.
- 5. RISER PIPE SHALL BE SUPPORTED LATERALLY FROM MANHOLE WALLS.
- 6. FOR MANHOLE LOCATIONS IN DELDOT MAINTAINED ROADWAYS REFER TO CURRENT DELDOT REQUIREMENTS WITH RESPECT TO CONCRETE COLLAR PLACEMENT AND ALLOWABLE MATERIALS FOR GRADE ADJUSTMENT RINGS.
- 7. IF LOW PRESSURE SEWER MAIN IS DIFFERENT IN SIZE TO THAT SHOWN, PROVIDE THE APPROPRIATELY SIZED FITTINGS TO MAKE TRANSITIONS.
- 8. GROUT BOTTOM OF MANHOLE TO SLOPE TOWARD 12" DRAIN HOLE.





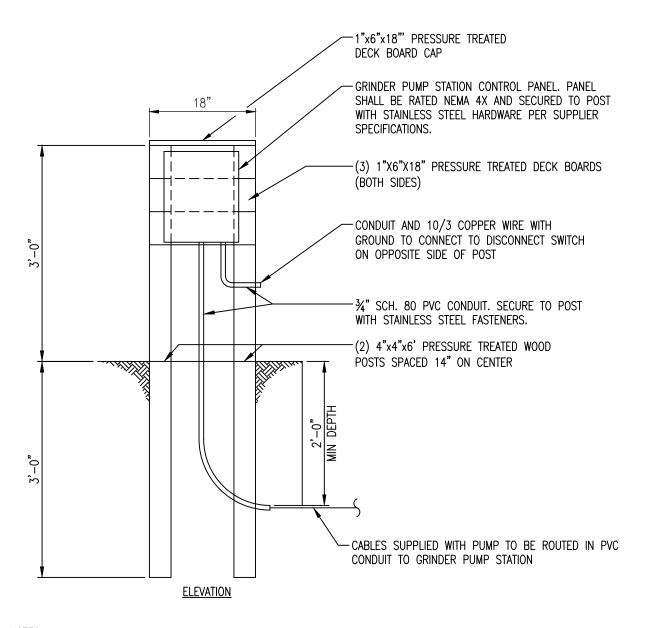
SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: SUSSEX COUNTY ENGINEER

IN-LINE FLUSHING CONNECTION

DETAIL S-5.06

LAST REVISED: 09/09/2022



- 1. ALL ELECTRICAL WORK SHALL BE PERFORMED PER THE NATIONAL ELECTRICAL CODE.
- 2. REFER TO THE LATEST VERSION OF SUSSEX COUNTY'S "PROCEDURES FOR GRINDER PUMP CONNECTIONS" FOR MINIMUM ELECTRICAL REQUIREMENTS OF POWER SUPPLY.
- 3. POWER DISCONNECT SWITCH ON HOUSE SIDE OF WOOD POST NOT SHOWN FOR CLARITY. DISCONNECT SWITCH SHALL BE SIEMENS MODEL WN2060U, 240 V. 60A, PULL OUT NON FUSED WITH NEMA 3R ENCLOSURE, OR APPROVED EQUAL.



SUSSEX COUNTY ENGINEERING DEPARTMENT

APPROVED: SUSSEX COUNTY ENGINEER

CONTROL PANEL POST MOUNTING

DETAIL S-5.07

DATE ISSUED: 6/26/2023